Course code	Course Title	L	T	P	J	C
CSI3018	Advanced Java	2	0	2	0	3
Pre-Requisite	CSI2008	Syllabus version v.1.0				

Course Objectives:

1. To understand advanced database programming with Java
2. To be able to effectively and efficiently work with servlets and JSP.
3. To understand web development and network programming in Java.

Expected Course Outcome:

At the end of this course students should be able to:

1. Analyze the programs involving the advanced networking program constructs.
2. Choose the appropriate database technique for solving the real world problem.
3. Demonstrate hibernate and use them in appropriate applications.
4. Propose the use of JSF for different scenarios.
5. Explore various methods for web application development.
6. Choose appropriate elements to facilitate network event

Module:1	JDBC Programming	4 hours

JDBC Architecture, Creating simple JDBC Application, Statements, ResultSet Operations, Batch Updates in JDBC, Creating CRUD Application, Using Rowsets Objects, Managing Database Transaction.

Module:2	Servlet API and JSP – Overview	4 hours

Servlet Introduction, Working with ServletContext and ServletConfig Objects, Response and Redirection, Filter API, Hidden Form Fields and URL Rewriting, Servlet Events - ContextLevel and SessionLevel. JSP Architecture, JSP Scripting Elements, JSP Directives, JSP Action, JSP Implicit Objects, JSP Standard Tag Libraries, JSP Custom Tag

Module:3	J2EE and Web Development	4 hours

Java Platform, J2EE Architecture Types, Java EE Containers, Servers in J2EE Application, Web Application Structure, Web Containers and Web Architecture Models. Request Processing in

Web Application.		
Module:4	**Advance Networking**	**4 hours**
Introduction of Socket, Types of Socket, Socket API, TCP/IP client sockets, URL, TCP/IP server sockets, Datagrams, java.net package Socket, ServerSocket, InetAddress, URLConnection, RMI Architecture, Client Server Application using RMI		
Module:5	**Hibernate**	**4 hours**
Introduction to Hibernate, Exploring Architecture of Hibernate, O/R Mapping with Hibernate, Hibernate Annotation, Hibernate Query Language, CRUD Operation using Hibernate API.		
Module:6	**Java Web Frameworks: Spring MVC**	**4 hours**
Spring Introduction, Spring Architecture, Spring MVC Module, Life Cycle of Bean Factory, Constructor Injection, Dependency Injection, Inner Beans, Aliases in Bean, Bean Scopes, Spring Annotations, Spring AOP Module, Spring DAO, Database Transaction Management, CRUD Operation using DAO and Spring API.		
Module:7	**Java Server Faces**	**4 hours**
Features of JSF, JSP Architecture, JSF request processing Life cycle, JSF Elements, JSF Expression Language, JSF Standard Component, JSF Facelets Tag, JSF Convertor Tag, JSF Validation Tag, JSF Database Access, JSF PrimeFaces.		
Module:8	**Recent Trends**	**2 hours**
Total Lecture hours:		**30 hours**
Text Book(s)		
1.Core and Advanced Java, Black Book, Recommended by CDAC, Revised and Upgraded by Dreamtech Press, 2018 2.Richard M Reese, Learning Network Programming with Java, Packt publisher, 2015		
Reference Books		
1.Craig walls ,Spring in Action, 5th edition, Manning Publication,2020. 2.Pankaj B. Brahmankar, Advanced JAVA Programming, Tech Neo Publications, 2019.		

Mode of Evaluation: CAT / Assignment / Quiz / FAT / Project / Seminar		
List of Experiments		
1.	Write an application which will retrieve IP address for given website.	2 hours
2.	Write a JDBC application which will interact with Database and perform the following task. 1) Create Student Table with RollNo, Name, and Address field and insert few records. 2) Using PreparedStatement Object display the content of Record. 3) Using PreparedStatement Object Insert Two Record. 4) Using PreparedStatement Object Update One Record. 5) Using PreparedStatement Object Delete One Record. 6) Using PreparedStatement Object display the content of Record.	4 hours
3.	Create Servlet file which contains following functions: 1. Connect 2. Create Database 3. Create Table 4. Insert Records into respective table 5. Update records of particular table of database 6. Delete Records from table. 7. Delete table and also database.	4 hours
4.	Write down the program in which input the two numbers in an html file and then display the addition in JSP file. Write down a program which demonstrates the core tag of JSTL.	4 hours
5.	Use Hibernate Query Language to insert, update and delete records in database.	4 hours
6.	Study and Implement MVC using Spring Framework	4 hours
7.	Inject Service using Aspect Oriented Programming.	4 hours
8.	Use JSF Standard Components and Facelets Tags.	4 hours
Total Laboratory Hours		30 hours
Mode of assessment: Project/Activity		

Recommended by Board of Studies	11-02-2021		
Approved by Academic Council	No. 61	Date	18-02-2021